## 1. A compound of Formula I:

F F N R

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wherein,

 $R^1$  is H,

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alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group can be optionally replaced by O-, -S-, or -NH-,

cycloalkyl having 3 to 6 carbon atoms, or

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cycloalkylalkyl having 4 to 7 C atoms

 $R^2$ 

is alkyl having 1 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen, hydroxy, cyano or combinations thereof, wherein one or more - $CH_2$ - groups is each independently optionally replaced by -O-, -S-, or -NH-, and wherein optionally one or more - $CH_2CH_2$ - groups is replaced in each case by -CH=CH- or -C=C-,

alkyl ether having 3 to 12 carbon atoms,

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 cycloalkyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano or combinations thereof,

cycloalkylalkyl having 4 to 12 C atoms, which is unsubstituted or substituted one or more times by  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano, halogen, or combinations thereof,

aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

arylalkyl having 7 to 16 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino,  $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

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heteroarylalkyl wherein the heteroaryl portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heteroaryl portion is unsubstituted or is substituted one or more times in by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heterocycle having  $\S$  to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, evano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,

heterocycle-alkyl wherein the heterocycle portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heterocycle portion is nonarmoatic and is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof, or

carbocycle which is nonaromatic, monocyclic or bicyclic, group having 5 to 14 carbon atoms, which is unsubstituted or is substituted one or more times in the by halogen, C<sub>1-4</sub> alkyl, halogenated C<sub>1-4</sub> alkyl, hydroxy, C<sub>1-4</sub>-alkoxy, halogenated C<sub>1-4</sub> alkoxy, nitro, methylenedioxy, ethylenedioxy, amino, C<sub>1-4</sub> alkylamino, di-C<sub>1-4</sub>-alkylamino, C<sub>1-4</sub>-hydroxyalkyl, C<sub>1-4</sub>-hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide, C<sub>2-4</sub>-acyl, C<sub>2-4</sub>-alkoxycarbonyl, C<sub>1-4</sub>-alkylthio, C<sub>1-4</sub>-alkylsulphinyl, C<sub>1-4</sub>-alkylsulphonyl, phenoxy, or combinations thereof;

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## with the provisos that:

- (a) when R<sup>1</sup> is methyl, then R<sup>2</sup> is not arylalkyl, heteroarylalkyl, 2-(1,2,3,4-tetrahydro)quinolinyl-methyl, methyl or 2-butyl;
- (b) when R<sup>1</sup> is cyclopropyl, R<sup>2</sup> is not 4-methylbenzyl;
- (c) when R<sup>1</sup> is ethyl, then R<sup>2</sup> is not ethyl, 3-aminobenzyl, 2-thienylmethyl, 3-thienylmethyl, or 2-pyridylmethyl;
- (d) when R<sup>1</sup> is cyclopropyl, then R<sup>2</sup> is not cyclopropylmethyl;
- (e) when R<sup>1</sup> is H, then R<sup>2</sup> is not methyl, ethyl, benzyl, 4-methylbenzyl, or substituted tetrahydrofuranyl;
- (f) when R<sup>1</sup> is methoxyethyl, then R<sup>2</sup> is not benzyl, 3-dimethylamin benzyl, or 3-thienylmethyl;
- (g) when R<sup>1</sup> is iso-butyl, then R<sup>2</sup> is not benzyl; and
- (h) when R<sup>1</sup> is n-butyl, then R<sup>2</sup> is not n-butyl.
- 20 2. A compound according to claim 1, wherein when  $R^1$  is methyl,  $R^2$  is not arylalkyl, heteroarylalkyl, 2-(1,2,3,4-tetrahydro)quinolinyl-methyl or  $C_{1-5}$ -alkyl.
- 25 3. A compound according to claim 1, wherein R<sup>1</sup> is alkyl.
  - 4. A compound according to claim 1, wherein R<sup>1</sup> is cycloalkyl.
  - 5. A compound according to claim 1, wherein R<sup>1</sup> is cycloalkylalkyl.
  - 6. A compound according to claim 1, wherein  $\mathbb{R}^2$  is alkyl.

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- 7.  $\setminus$  A compound according to claim 1, wherein  $\mathbb{R}^2$  is alkyl ether.
- 8. A compound according to claim 1, wherein R<sup>2</sup> is cycloalkyl.
- 5 9. A compound according to claim 1, wherein R<sup>2</sup> is aryl.
  - 10. A compound according to claim 1, wherein R<sup>2</sup> is arylalkyl.
  - 11. A compound according to claim 1, wherein R<sup>2</sup> is heteroaryl.
  - 12. A compound according to claim 1, wherein R<sup>2</sup> is heteroarylalkyl.
  - 13. A compound according to claim 1, wherein R<sup>2</sup> heterocycle.
- 15 14. A compound according to claim 1, wherein R<sup>2</sup> heterocycle-alkyl.
  - 15. A compound according to claim 1 wherein R<sup>2</sup> carbocycle.
- 16. A compound according to claim 1, wherein R<sup>1</sup> is alkyl, substituted alkyl,
  20 cycloalkyl or cycloalkylalkyl.
  - 17. A compound according to claim 6, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
- 25 18. A compound according to claim 7, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.

- 19. A compound according to claim 8, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
- 20. A compound according to claim 9, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
  - 21. A compound according to claim 10, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
- 10 22. A compound according to claim 11, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
  - 23. A compound according to claim 12, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
  - 24. A compound according to claim 13, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
- 25. A compound according to claim 14, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
  - 26. A compound according to claim 15, wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.
- 25 27. A compound according to claim 1, wherein R<sup>1</sup> is methyl, ethyl, isopropyl, 2-hydroxyethyl, cyclopropyl, cyclopentyl, or cyclopropylmethyl.
  - 28. A compound according to claim 1, wherein R<sup>1</sup> is methyl, ethyl, cyclopropyl, cyclobutyl, cyclopentyl or cyclohexyl.

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- A compound according to claim 1, wherein R<sup>1</sup> is methyl, ethyl or cyclopropyl.
- 30. A compound according to claim 1, wherein R<sup>2</sup> is alkyl, arylalkyl, cycloalkyl, aryl, heteroaryl, heteroarylalkyl, or alkyl ether.
- 31. A compound according to claim 1, wherein R<sup>2</sup> is ethyl, isopropyl, butyl, tertbutyl, cyclopentyl, cyclohexyl, cycloheptyl, or arylalkyl which is unsubstituted or substituted one or more times by F, Cl, CN, CF<sub>3</sub>, CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, isopropyl, OCH<sub>3</sub>, methylenedioxy, ethylenedioxy or combinations thereof.
- 32. A compound according to claim 1, wherein R<sup>2</sup> is substituted or unsubstituted benzyl, phenethyl or phenpropyl.
- 15 33. A compound of formula II

wherein

20 R<sup>1'</sup> is methyl, ethyl, or cyclopropyl; and

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· III

- $R^{2'}$  is cycloalkyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano or combinations thereof,
  - aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino,  $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,
  - heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1.4}$  alkyl, halogenated  $C_{1.4}$  alkyl, hydroxy,  $C_{1.4}$ -alkoxy, halogenated  $C_{1.4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1.4}$ -alkylamino, di- $C_{1.4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1.4}$ -alkylthio,  $C_{1.4}$ -alkylsulphonyl, or combinations thereof,
- heterocycle having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl, C<sub>1-4</sub> alkyl, halogenated C<sub>1-4</sub> alkyl, hydroxy, C<sub>1-4</sub>-alkoxy, halogenated C<sub>1-4</sub> alkoxy, cyano, trifluoromethyl, nitro, oxo, amino, C<sub>1-4</sub>-alkylamino, di-C<sub>1-4</sub>-alkylamino, carboxy, alkoxycarbonyl, or combinations thereof (e.g., piperidinyl, imidazolinyl, imidazolidinyl, pyrrolinyl, pyrrolidinyl, morpholinyl, piperazinyl, and indolinyl), or
  - carbocycle which is nonaromatic, monocyclic or blcyclic, group having 5 to 14 carbon atoms, which is unsubstituted or is substituted one or more times in the by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -

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pharmaceutically acceptable salts thereof.

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34. A compound of Formula III:

wherein

15 R<sup>1</sup>" is methyl, ethyl, or cyclopropyl; and

R<sup>2</sup>" is phenyl,

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phenyl which is substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof, or

heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, substituted heteroaryl having 5 to 10 ring atoms, in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl, C<sub>1-4</sub>-alkyl, C<sub>1-4</sub>-alkoxy, cyano, trifluoromethyl, nitro, oxo, amino, C<sub>1-4</sub>alkylamino, di-C<sub>1-4</sub>-alkylamino or combinations thereof,

or when R<sup>1</sup> is methyl or cyclopropyl R<sup>2</sup> can also be cycloalkyl having 3 to 12 carbon atoms:

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and

pharmaceutically acceptable salts thereof.

35. A compound according to claim 1, wherein said compound selected from:

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6-Cyclopropylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine 6-Ethylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(4-fl\u00faorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2, 6-difluorobenzyl)-2-trifluoromethylpurine 20 6-Cyclopropylamino-9-(2, 3-d)fluorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-propyl 2-trifluoromethylpurine 6-Cyclopropylamino-9-cyclopentyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3, 4-dimethoxybenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3,4-methylenedioxybenzyl)-2-25 trifluoromethylpurine 6-Cyclopropylamino-9-(3-thiophenemethyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2-methylphenethyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-cycloheptyl-2-trifluoromethylpurine 6-Methylamino-9-cyclopentyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-cyclohexyl-2-trifluoromethylpurine 6-Methylamino-9-cycloheptyl-2-trifluoromethylpurine

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6-Cyclopropylamino-9-cyclopentylmethyl-2-trifluoromethylpurine

6-Cyclopropylamino-9-phenyl-2-trifluoromethylpurine

6-Cyclopropylamino-9-(2-fluorophenyl)-2-trifluoromethylpurine

6-Cyclopropylamino-9-cyclobutyl-2-trifluoromethylpurine

6-Cyclopropylamino-9-(2-norboranane)-2-trifluoromethylpurine

6-Cyclopropylamino-9-(1-indanyl)-2-trifluoromethylpurine

6-Cyclopropylamino-9-(4-fluorophenyl)-2-trifluoromethylpurine

6-Cyclopropylamino-9-(4-chlorophenyl)-2-trifluoromethylpurine

6-Cyclopropylamino-9-(3-thienyl)-2-trifluoromethylpurine

6-Methylamino-9-cycloheptyl-2-trifluoromethylpurine

6-Cyclopropylamino-9-(2-fluorophenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-cyclobutyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2-norboranane)-2-trifluoromethylpurine 5. 6-Cyclopropylamino-9-(4-fluorophenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(4-chlorophenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-thienyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3, 4-dimethoxyphenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2, 6-dichloro-4-pyridylmethyl)-2-trifluoromethylpurine 10 6-Cyclopropylamino-9-(4-methoxybenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-methoxyphenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(4-methoxyphenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-nitrophenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2-methoxyphenyl)-2-trifluoromethylpurine 15 6-Cyclopropylamino-9-(3-cyanophenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-nitrobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(4-pyridyl)-2-trifluoromethylpurine 6-Methylamino-9-(2, 4-dimethoxy-5-pyrimidyl)-2-trifluoromethylpurine 6-Methylamino-9-(4-methoxyphenyl)-2-trifluoromethylpurine 20 6-Methylamino-9-(3-acetylphenyl)-2-trifluoromethylpurine 6-Methylamino-9-(3-methoxyphenyl)-2-trifluoromethylpurine 6-Methylamino-9-(3-nitrophenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-ethoxyphenyl)-2-trifluoromethylpurine 6-Methylamino-9-(3,4-dimethoxyphenyl)-2-trifluoromethylpurine; and 25 pharmaceutically acceptable salts thereof.

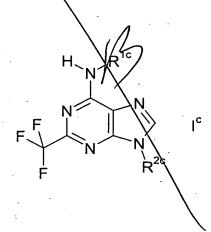
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6-Cyclopropylamino-9-phenyl-2-trifluoromethylpurine

37. A method for enhancing cognition in a patient in whom such enhancement is desired comprising administering to said patient an effective amount of a compound according to formula I<sup>c</sup>:



wherein,  $R^{1c} \quad \text{is H,}$ 

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alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group can be optionally replaced by -O-, -S-, or -NH-,

cycloalky having 3 to 6 carbon atoms, or

10 cycloalkylalkyl having 4 to 7 C atoms;

 $R^{2c}$  is alkyl having 1 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen, hydroxy, cyano or combinations thereof, wherein one or more -CH<sub>2</sub>- groups is each independently optionally replaced by -O-, -S-, or -NH-, and wherein optionally one or more -CH<sub>2</sub>CH<sub>2</sub>- groups is replaced in each case by -CH=CH- $\phi r$ -C=C-

alkyl ether having 3 to 12 carbon atoms,

cycloalkyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano or combinations thereof,

cycloalkylalkyl having 4 to 12 C atoms, which is unsubstituted or substituted one or more times by  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano, halogen, or combinations thereof,

aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$ 

alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

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arylalkyl having 7 to 16 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino,  $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

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heteroaryl having 5 to 10 fing atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

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heteroarylalkyl wherein the heteroaryl portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heteroaryl portion is unsubstituted or is substituted one or more times in by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

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heterocycle having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,

heterocycle-alkyl wherein the heterocycle portion has 5 to 10 ring atoms in which
at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms,
the heterocycle portion is nonarmoatic and is unsubstituted or is substituted one or
more times in the by halogen, aryl, C<sub>1-4</sub> alkyl, halogenated C<sub>1-4</sub> alkyl, hydroxy, C<sub>1-4</sub>
4-alkoxy, halogenated C<sub>1-4</sub> alkoxy, cyano, trifluoromethyl, nitro, oxo, amino, C<sub>1-4</sub>

thereof, or

carbocycle which is nonaromatic, monocyclic or bicyclic, group having 5 to 14 carbon atoms, which is unsubstituted or is substituted one or more times in the by halogen, C<sub>1-4</sub> alkyl, halogenated C<sub>1-4</sub> alkyl, hydroxy, C<sub>1-4</sub>-alkoxy, halogenated C<sub>1-4</sub> alkoxy, nitro, methylenedioxy, ethylenedioxy, amino, C<sub>1-4</sub> alkylamino, di-C<sub>1-4</sub>-alkylamino, C<sub>1-4</sub>-hydroxyalkyl, C<sub>1-4</sub>-hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide, C<sub>2-4</sub>-acyl, C<sub>2-4</sub>-alkoxycarbonyl, C<sub>1-4</sub>-alkylthio, C<sub>1-4</sub>-alkylsulphonyl, phenoxy, or combinations thereof;

4-alkylamino, di-C<sub>1-4-1</sub>alky/lamino, carboxy, alkoxycarbonyl, or combinations

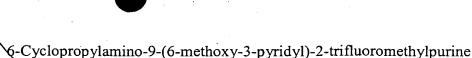
25 and

pharmaceutically acceptable salts thereof,

with the proviso that said compound is not 6-methylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine.

and the

- 38. A method according to claim 37, wherein said compound is administered in an amount of 0.01-100 mg/kg of body weight/day.
- 39. A method according to claim 37, wherein said patient is a human.
- 40. A method according to claim 37, wherein said compound selected from:
- 6-Cyclopropylamino-Q-(2-fluorobenzyl)-2-trifluoromethylpurine;
- 6-Ethylamino-9-(2-fludrobenzyl)-2-trifluoromethylpurine
- 6-Cyclopropylamino-9-(4-fluorobenzyl)-2-trifluoromethylpurine
- 6-Cyclopropylamino-9-(2, 6-difluorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2, 3-difluorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-propyl 2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-cyclopentyl-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(3, 4-dimethoxybenzyl)-2-trifluoromethylpurine
- 6-Cyclopropylamino-9-(3,4-methylenedioxybenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-thiophenemethyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(2-methyl) henethyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-cyclopropylmethyl-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-cycloheptyl-2-trifluoromethylpurine
- 20 6-Methylamino-9-cyclopentyl-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-cyclohexyl-2-tr\fluoromethylpurine
    - 6-Methylamino-9-cycloheptyl-2-trifluoromethylpurine
    - 6-Cyclopropylamino-9-cyclopentylmethyl-2-trifluoromethylpurine
    - 6-Cyclopropylamino-9-phenyl-2-trifluoromethylpurine
- 25 6-Cyclopropylamino-9-(2-fluorophenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-cyclobutyl-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(2-norboranane)-2-tritluoromethylpurine
  - 6-Cyclopropylamino-9-(1-indanyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(4-fluorophenyl)-2-trifluoromethylpurine
- 30 6-Cyclopropylamino-9-(4-chlorophenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(4-tolyl)-2-trifluorometh\(\forall \)purine
  - 6-Cyclopropylamino-9-(3-thienyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(3-cyclopentyloxy-4-methoxybenzyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(3, 4-dimethoxyphenyl)-2-trifluoromethylpurine
- 35 6-Cyclopropylamino-9-(2, 6-dichloro-4-pyridylmethyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(4-methoxybenzyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(3-methoxyphenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(4-methoxyphenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(3-nitrophenyl)-2-trifluoromethylpurine
- 40 6-Cyclopropylamino-9-(2-methoxyphenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(3-cyanophenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(2, 4-dimethoxyphenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(3-nitrobenzyl)-2-trifluoromethylpurine



6-Cyclopropylamino-9-(4-pyridyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-pyridyl)-2-trifluoromethylpurine

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6-Cyclopropylamino-9-(4-dimethylaminophenyl)-2-trifluoromethylpurine

- 6-Cyclopropylamino-9-(3-aminophenyl)-2-trifluoromethylpurine
- 6-Methylamino-9-(2, 4-dimethoxy-5-pyrimidyl)-2-trifluoromethylpurine
- 6-Methylamino 9-(2-methoxyphenyl)-2-trifluoromethylpurine
- 6-Methylamino-9 (4-methoxyphenyl)-2-trifluoromethylpurine
- 6-Methylamino-9-(3-acetylphenyl)-2-trifluoromethylpurine
- 6-Methylamino-9-(3-methoxyphenyl)-2-trifluoromethylpurine 6-Methylamino-9-(3-nitrophenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(3-furanyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(4-ethoxyphenyl)-2-trifluoromethylpurine
  - 6-Cyclopropylamino-9-(2-ethoxyphenyl)-2-trifluoromethylpurine
- 6-Cyclopropylamino-9-(3, 4-methylenedioxyphenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-ethoxyphenyl)-2-trifluoromethylpurine
  - 6-Methylamino-9-(3,4-dimethoxyphenyl)-2-trifluoromethylpurinep; and pharmaceutically acceptable salts thereof.
- 20 41. A method according to claim 40, wherein said patient is a human.
  - 42. A method according to claim 41, wherein said compound is administered in an amount of 0.01-100 mg/kg of body weight/day.
- 43. A method according to claim 37, wherein when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, methyl or 2-butyl, and when R<sup>1c</sup> is H, then R<sup>2c</sup> is not benzyl
  - 44. A method according to claim 37, wherein:
    - (a) when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, heteroarylalkyl, 2-
    - (1,2,3,4-tetrahydro)quinolinyl-methyl, methyl or 2-butyl;
      - (b) when R<sup>1c</sup> is by clopropyl, R<sup>2c</sup> is not 4-methylbenzyl;
      - (c) when R<sup>1c</sup> is ethyl, then R<sup>2c</sup> is not ethyl, 3-aminobenzyl, 2-thienylmethyl, 3-thienylmethyl, or 2-pyridylmethyl;
      - (d) when R<sup>1c</sup> is cyclopropyl, then R<sup>2c</sup> is not cyclopropylmethyl;
- 35 (e) when R<sup>1c</sup> is H, then R<sup>2c</sup> is not methyl, ethyl, benzyl, 4-methylbenzyl, or substituted tetrahydrofuranyl;

- (g) when R<sup>1c</sup> is iso-butyl, then R<sup>2c</sup> is not benzyl; and
- (h) when  $R^{1c}$  is n-butyl, then  $R^{2c}$  is not n-butyl.

45. A method of treating a patient suffering from cognition impairment or decline comprising administering to said patient an effective amount of a compound according to formula I<sup>c</sup>:

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wherein,

R<sup>1c</sup> is H,

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alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group can be optionally replaced by -O-, -S-, or -NH-,

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cycloalkyl having 3 to 6 carbon atoms, or

cycloalkylalkyl having 4 to 7 C atoms;

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 $R^{2c}$ 

is alkyl having 1 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen, hydroxy, cyano or combinations thereof, wherein one or

more -CH<sub>2</sub>- groups is each independently optionally replaced by -O-, -S-, or -NH-, and wherein optionally one or more -CH<sub>2</sub>CH<sub>2</sub>- groups is replaced in each case by -CH=CH- or -C $\equiv$ C-

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alkyl ether having 3 to 12 carbon atoms,

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cycloalkyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano or combinations thereof,

cycloalkylalkyl having 4 to 12 C atoms, which is unsubstituted or substituted one or more times by  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano, halogen, or combinations thereof,

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aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

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arylalkyl having 7 to 16 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

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heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heteroarylalkyl wherein the heteroaryl portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heteroaryl portion is unsubstituted or is substituted one or more times in by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heterocycle having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,

heterocycle-alkyl wherein the heterocycle portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heterocycle portion is nonarmoatic and is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof, or

carbocycle which is nonaromatic, monocyclic or bicyclic, group having 5 to 14 carbon atoms, which is unsubstituted or is substituted one or more times in the by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphinyl, phenoxy, or combinations thereof;

10 and

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pharmaceutically acceptable salts thereof,

with the proviso that said compound is not 6-methylamino-9 (2-fluorobenzyl)-2-trifluoromethylpurine.

- 46. A method according to claim 45, wherein said patient is a human.
- 47. A method according to claim 46, wherein said patient is suffering from memory 20 impairment.

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49. A method according to claim 45, wherein said compound is administered in an amount of 0.01-100 mg/kg of body weight/day.

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- 25 SQ. A method according to claim 43 wherein said patient is suffering from memory impairment due to Alzheimer's disease, schizophrenia, Parkinson's disease, Huntington's disease, Pick's disease, Creutzfeld-Jakob disease, depression, aging, head trauma, stroke, CNS hypoxia, cerebral senility, multiinfarct dementia, HIV or cardiovascular disease.
- 30 Go.

  N. A method according to claim 45, wherein said compound selected from:

&-Cyclopropylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine 6\Methylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine 6-Ethylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(4-fluorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2, 6-difluorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2, 3-difluorobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-propyl 2-trifluoromethylpurine 6-Cyclopropylamino-9-cyclopentyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3, 4-dimethoxybenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3,4-methylenedioxybenzyl)-2trifluoromethylpurine 10 6-Cyclopropylamino-9-(3-thiophenemethyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2-methylphenethyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-cyclopropylmethyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-cycloheptyl-2-trifluoromethylpurine 15 6-Methylamino-9-cyclopentyl-2-trifluoromethylpurine 6-Cyclopropylamino-\( \bar{9}\)-cyclohexyl-2-trifluoromethylpurine 6-Methylamino-9-cycloheptyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-cyclopentylmethyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-phenyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2-fluorophenyl)-2-trifluoromethylpurine 20 6-Cyclopropylamino-9-cyclobutyl-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2-norogranane)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(1-indanyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(4-fluorophenyl)-2-trifluoromethylpurine 25 6-Cyclopropylamino-9-(4-chlorophenyl)-2-trifluoromethylpurine -6-Cyclopropylamino-9-(4-tolyl)-2-thifluoromethylpurine 6-Cyclopropylamino-9-(3-thienyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-cyclopentyloxy-4-methoxybenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3, 4-dimethoxyphenyl)-2-trifluoromethylpurine 30 6-Cyclopropylamino-9-(2, 6-dichloro-4-pyridylmethyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(4-methoxybenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-methoxyphenyl)\(2\)-trifluoromethylpurine 6-Cyclopropylamino-9-(4-methoxyphenyl)-2 trifluoromethylpurine 6-Cyclopropylamino-9-(3-nitrophenyl)-2-triflaoromethylpurine 35 6-Cyclopropylamino-9-(2-methoxyphenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-cyanophenyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(2, 4-dimethoxyphenyl)-2\trifluoromethylpurine 6-Cyclopropylamino-9-(3-nitrobenzyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(6-methoxy-3-pyridyl)-2-tritluoromethylpurine 40 6-Cyclopropylamino-9-(4-pyridyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(3-pyridyl)-2-trifluoromethylpurine 6-Cyclopropylamino-9-(4-dimethylaminophenyl)-2-trilluoromethylpurine 6-Cyclopropylamino-9-(3-aminophenyl)-2-trifluoromethylpurine 6-Methylamino-9-(2, 4-dimethoxy-5-pyrimidyl)-2-trifluoromethylpurine 45 6-Methylamino-9-(2-methoxyphenyl)-2-trifluoromethylpurine

6-Methylamino-9-(4-methoxyphenyl)-2-trifluoromethylpurkne

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6-Methylamino-9-(3-acetylphenyl)-2-trifluoromethylpurine
       6-Methylamino-9-(3-methoxyphenyl)-2-trifluoromethylpurine
       6-Methylamino-9-(3-nitrophenyl)-2-trifluoromethylpurine
       6-Cyclopropylamino-9-(3-furanyl)-2-trifluoromethylpurine
       6-Cyclopropylamino-9-(4-ethoxyphenyl)-2-trifluoromethylpurine
       6-Cyclopropylamino-9-(2-ethoxyphenyl)-2-trifluoromethylpurine
       6-Cyclopropylamino-9-(3, 4-methylenedioxyphenyl)-2-trifluoromethylpurine
       6-Cyclopropylamino-9-(3-ethoxyphenyl)-2-trifluoromethylpurine
       6-Methylamino \9-(3,4-dimethoxyphenyl)-2-trifluoromethylpurinep; and
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       pharmaceutically acceptable salts thereof.
       51
               A method according to claim 51, wherein said patient is a human.
       52
               A method according to claim 45, wherein when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not
       33.
       arylalkyl, methyl or 2-butyl, and when R<sup>1c</sup> is H, then R<sup>2c</sup> is not benzyl
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               A method according to claim 45, wherein:
                       (a) when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, heteroarylalkyl, 2-
                       (1,2,3,4-tetrahydro) quinolinyl-methyl, methyl or 2-butyl;
                       (b) when R<sup>1c</sup> is cyclopropyl, R<sup>2c</sup> is not 4-methylbenzyl;
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                       (c) when R<sup>1c</sup> is ethyl, then R<sup>2c</sup> is not ethyl, 3-aminobenzyl, 2-
                       thienylmethyl, 3-thienylmethyl, or 2-pyridylmethyl;
                       (d) when R<sup>1c</sup> is cyclopropyl, then R<sup>2c</sup> is not cyclopropylmethyl;
                       (e) when R^{1c} is H, then R^{2c} is not methyl, ethyl, benzyl, 4-methylbenzyl, or
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                       substituted tetrahydrofuranyl;
                      (f) when R<sup>1c</sup> is methoxyethyl, then R<sup>2c</sup> is not benzyl, 3-
                       dimethylaminobenzyl, or 3-thienxlmethyl;
                      (g) when R1c is iso-butyl, then R2c is not benzyl; and
                      (h) when R<sup>1c</sup> is n-butyl, then R<sup>2c</sup> is not n-butyl.
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                      A method for treating a patient having a disease involving decreased
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cAMP levels comprising administering to said patient an effective amount of a compound

according to formula Ic:

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5 wherein,  $R^{1c} \quad \text{is H},$ 

alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group can be optionally replaced by -O-, -S-, or -NH-,

cycloalkyl having 3 to 6 carbon atoms, or

cycloalkylalkyl having 4 to 7 C atoms;

R<sup>2c</sup> is alkyl having 1 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen, hydroxy, cyano or combinations thereof, wherein one or more -CH<sub>2</sub>- groups is each independently optionally replaced by -O-, -S-, or -NH-, and wherein optionally one or more -CH<sub>2</sub>CH<sub>2</sub>- groups is replaced in each case by -CH=CH- or -C≡C-

alkyl ether having 3 to 12 carbon atoms,

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cycloalkyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano or combinations thereof,

cycloalkylalkyl having 4 to 12 C atoms, which is unsubstituted or substituted one or more times by  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano, halogen, or combinations thereof,

aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

arylalkyl having 7 to 16 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino,  $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, eyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heteroarylalkyl wherein the heteroaryl portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heteroaryl portion is unsubstituted or is substituted one or more times in by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heterocycle having  $\S$  to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, evano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,

heterocycle-alkyl wherein the heterocycle portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heterocycle portion is nonarmoatic and is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof, or

carbocycle which is nonaromatic, monocyclic or bicyclic, group having 5 to 14 carbon atoms, which is unsubstituted or is substituted one or more times in the by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic

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acid, carboxamide, C<sub>2-4</sub>-acyl, C<sub>2-4</sub>-alkoxycarbonyl, C<sub>1-4</sub>-alkylthio, C<sub>1-4</sub>-alkylsulphinyl, C<sub>1-4</sub>-alkylsulphonyl, phenoxy, or combinations thereof;

and

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pharmaceutically acceptable salts thereof,

with the proviso that said compound is not 6-methylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine.

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55 37. A method according to claim 56, wherein when  $R^{1c}$  is methyl, then  $R^{2c}$  is not arylalkyl, methyl or 2-butyl, and when  $R^{1c}$  is H, then  $R^{2c}$  is not benzyl

56. A method according to claim 56, wherein:

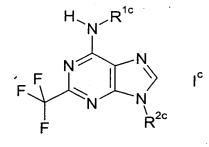
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- (a) when R is methyl, then R is not arylalkyl, heteroarylalkyl, 2-
- (1,2,3,4-tetrahydro)quinolinyl-methyl, methyl or 2-butyl;
- (b) when R<sup>1c</sup> is cyclopropyl, R<sup>2c</sup> is not 4-methylbenzyl;
- (c) when R<sup>1c</sup> is ethyl, then R<sup>2c</sup> is not ethyl, 3-aminobenzyl, 2-thienylmethyl, 3-thienylmethyl, or 2-pyridylmethyl;

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- (d) when  $R^{1c}$  is cyclopropyl, then  $R^{2c}$  is not cyclopropylmethyl;
- (e) when R<sup>1c</sup> is H, then R<sup>2c</sup> is not methyl, ethyl, benzyl, 4-methylbenzyl, or substituted tetrahydrofuranyl;
- (f) when R<sup>1c</sup> is methoxyethyl, then R<sup>2c</sup> is not benzyl, 3-dimethylaminobenzyl, or 3-thienylmethyl;

- (g) when R1c is iso-butyl, then R2c is not benzyl; and
- (h) when  $R^{1c}$  is n-butyl, then  $R^{2c}$  is not n-butyl.
- 57 39. A method of inhibiting PDE4 enzyme activity in a patient comprising
- administering to said patient an effective amount of a compound according to formula I<sup>c</sup>:



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wherein,

 $5 R^{1c} is H,$ 

alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group can be optionally replaced by -O-, -S-, or -NH-,

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cycloalkyl having 3 to 6 carbon atoms, or

cycloalkylalkyl having 4 to 7 Catoms;

15 R<sup>2c</sup>

is alkyl having 1 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen, hydroxy, cyano or combinations thereof, wherein one or more -CH<sub>2</sub>- groups is each independently optionally replaced by -O-, -S-, or -NH-, and wherein optionally one or more -CH<sub>2</sub>CH<sub>2</sub>- groups is replaced in each case by -CH=CH- or -C=C-

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alkyl ether having 3 to 12 carbon atoms,

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cycloalkyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano or combinations thereof,

cycloalkylalkyl having 4 to 12 C atoms, which is unsubstituted or substituted one or more times by  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano, halogen, or combinations thereof,

aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$  alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

arylalkyl having 7 to 16 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_1$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino,  $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one of more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

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heteroarylalkyl wherein the heteroaryl portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heteroaryl portion is unsubstituted or is substituted one or more times in by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heterocycle having  $\S$  to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, evano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,

heterocycle-alkyl wherein the heterocycle portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heterocycle portion is nonarmoatic and is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,or

carbocycle which is nonaromatic, monocyclic or bicyclic, group having 5 to 14 carbon atoms, which is unsubstituted or is substituted one or more times in the by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic

L. H. S. S. S. S. Section States

acid, carboxamide, C<sub>2-4</sub>-acyl, C<sub>2-4</sub>-alkoxycarbonyl, C<sub>1-4</sub>-alkylthio, C<sub>1-4</sub>-alkylsulphinyl, C<sub>1-4</sub>-alkylsulphonyl, phenoxy, or combinations thereof;

and

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pharmaceutically acceptable salts thereof,

with the proviso that said compound is not 6-methylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine.

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A method according to claim 59, wherein when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, methyl or 2-butyl, and when R<sup>1c</sup> is H, then R<sup>2c</sup> is not benzyl

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. A method according to claim 59, wherein:

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- (a) when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, heteroarylalkyl, 2-(1,2,3,4-tetrahydro)quinolinyl-methyl, methyl or 2-butyl;
- (b) when R<sup>1c</sup> is cyclopropyl, R<sup>2c</sup> is not 4-methylbenzyl;
- (c) when R<sup>1c</sup> is ethyl, then R<sup>2c</sup> is not ethyl, 3-aminobenzyl, 2-thienylmethyl, 3-thienylmethyl, or 2-pyridylmethyl;

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- (d) when R<sup>1c</sup> is cyclopropyl, then R<sup>2c</sup> is not cyclopropylmethyl;
- (e) when R<sup>1c</sup> is H, then R<sup>2c</sup> is not methyl, ethyl, benzyl, 4-methylbenzyl, or substituted tetrahydrofuranyl,
- (f) when R<sup>1c</sup> is methoxyethyl, then R<sup>2c</sup> is not benzyl, 3-dimethylaminobenzyl, or 3-thienxlmethyl;

- (g) when R<sup>1c</sup> is iso-butyl, then R<sup>2c</sup> is not benzyl; and
- (h) when R<sup>1c</sup> is n-butyl, then R<sup>2c</sup> is not n-butyl.
- (60 62. A pharmaceutical composition comprising a compound according to claim 1 and 30 a pharmaceutically acceptable carrier.

- 62 A method of treating a patient suffering from memory impairment due to a 8₩. neurodegenerative disease comprising administering to said patient an effective amount
  - of a compound according to formula I<sup>c</sup>:

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wherein,

R1c is H.

alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group 15 can be optionally replaced by -O<sub>r</sub>, -S-, or -NH-,

cycloalkyl having 3 to 6 carbon atoms, or

- cycloalkylalkyl having 4 to 7 C atom; 20
  - $R^{2c}$ is alkyl having 1 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen, hydroxy, cyano or combinations thereof, wherein one or more -CH<sub>2</sub>- groups is each independently\optionally replaced by -O-, -S-, or -

alky ether having 3 to 12 carbon atoms,

cycloallyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano or combinations thereof,

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cycloalkylalkyl having 4 to 12 C atoms, which is unsubstituted or substituted one or more times by  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano, halogen, or combinations thereof,

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aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

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arylalkyl having 7 to 16 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphinyl, phenoxy, or combinations thereof,

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heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom,

which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heteroarylalkyl wherein the heteroaryl portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heteroaryl portion is unsubstituted or is substituted one or more times in by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heterocycle having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,

heterocycle-alkyl wherein the heterocycle portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heterocycle portion is nonarmoatic and is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,or

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and

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pharmaceutically acceptable salts thereof,

with the proviso that said compound is not 6-methylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine.

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A method according to claim 64, wherein when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, methyl or 2-butyl, and when R<sup>2c</sup> is H, then R<sup>2c</sup> is not benzyl

64 66. A method according to claim 64, wherein:

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- (a) when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, heteroarylalkyl, 2-(1,2,3,4-tetrahydro)quinolinyl methyl, methyl or 2-butyl;
- (b) when R<sup>1c</sup> is cyclopropyl, R<sup>2</sup> is not 4-methylbenzyl;
- (c) when R<sup>1c</sup> is ethyl, then R<sup>2c</sup> is not ethyl, 3-aminobenzyl, 2-thienylmethyl, 3-thienylmethyl, or 2-pyridylmethyl;

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- (d) when R<sup>1c</sup> is cyclopropyl, then R<sup>2</sup> is not cyclopropylmethyl;
- (e) when  $R^{1c}$  is H, then  $R^{2c}$  is not methyl, ethyl, benzyl, 4-methylbenzyl, or substituted tetrahydrofuranyl;
- (f) when R<sup>1c</sup> is methoxyethyl, then R<sup>2c</sup> is not benzyl, 3-dimethylaminobenzyl, or 3-thienylmethyl;

- (g) when R<sup>1c</sup> is iso-butyl, then R<sup>2c</sup> is not benzyl; and
- (h) when R<sup>1c</sup> is n-butyl, then R<sup>2c</sup> is not n-butyl

- A method of treating a patient suffering from memory impairment due to an acute neurodescenerative disorder comprising administering to said patient an effective amount of a compound according to formula I<sup>c</sup>:

10 wherein,
R<sup>1c</sup> is H,

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- alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group can be optionally replaced by -O-, -S-, or -NH-,
- cycloalkyl having 3 to 6 carbon atoms, or
- cycloalkylalkyl having 4 to 7 C atoms;
- R<sup>2c</sup> is alkyl having 1 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen, hydroxy, cyano or combinations thereof, wherein one or more -CH<sub>2</sub>- groups is each independently optionally replaced by -O-, -S-, or -NH-, and wherein optionally one or more -CH<sub>2</sub>CH<sub>2</sub>- groups is replaced in each case by -CH=CH- or -C≡C-

alky ether having 3 to 12 carbon atoms,

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cycloalkyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano or combinations thereof,

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cycloalkylalkyl having 4 to 12 C atoms, which is unsubstituted or substituted one or more times by  $C_{1.4}$  alkyl, halogenated  $C_{1.4}$  alkyl,  $C_{1.4}$  alkoxy, cyano, halogen, or combinations thereof,

15.

aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

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arylalkyl having 7 to 16 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino,  $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

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heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy,

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cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heteroarylalkyl wherein the heteroaryl portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heteroaryl portion is unsubstituted or is substituted one or more times in by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof

heterocycle having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,

heterocycle-alkyl wherein the heterocycle portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heterocycle portion is nonarmoatic and is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,or

carbocycle which is nonaromatic, monocyclic of bicyclic, group having 5 to 14 carbon atoms, which is unsubstituted or is substituted one or more times in the by

halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof;

and

pharmaceutically acceptable salts thereof,

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with the proviso that said compound is not 6-methylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine

68. A method according to claim 67, wherein when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, methyl or 2-butyl, and when R<sup>1c</sup> is H, then R<sup>2c</sup> is not benzyl

67 8. A method according to claim 6, wherein:

- (a) when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, heteroarylalkyl, 2-(1,2,3,4-tetrahydro)quinolinyl-methyl, methyl or 2-butyl;
- (b) when R<sup>1c</sup> is cyclopropyl, R<sup>2c</sup> is not 4-methylbenzyl;
- (c) when R<sup>1c</sup> is ethyl, then R<sup>2c</sup> is not ethyl, 3-aminobenzyl, 2-thienylmethyl, 3-thienylmethyl, or 2-pyridylmethyl;
- (d) when  $R^{1c}$  is cyclopropyl, then  $R^{2c}$  is not cyclopropylmethyl;
- (e) when R<sup>1c</sup> is H, then R<sup>2c</sup> is not methyl, ethyl, benzyl, 4-methylbenzyl, or substituted tetrahydrofuranyl;
- (f) when R<sup>1c</sup> is methoxyethyl, then R<sup>2c</sup> is not benzyl, 3-dimethylaminobenzyl, or 3-thienylmethyl,
- (g) when R1c is iso-butyl, then R2c is not beneyl; and
- (h) when R<sup>1c</sup> is n-butyl, then R<sup>2c</sup> is not n-butyl

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wherein,

R<sup>1c</sup> is H,

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alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group can be optionally replaced by -O-, S-, or -NH-,

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cycloalkyl having 3 to 6 carbon atoms, or

cycloalkylalkyl having 4 to 7 C atoms;

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 $R^{2c} \\$ 

is alkyl having 1 to 12 carbon atoms, which is unsubstituted or substituted one or more times by halogen, hydroxy, cyano or combinations thereof, wherein one or more -CH<sub>2</sub>- groups is each independently optionally replaced by -O-, -S-, or -NH-, and wherein optionally one or more -CH<sub>2</sub>CH<sub>2</sub>- groups is replaced in each case by -CH=CH- or -C=C-

combinations thereof,

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cycloalkylalkyl having 4 to 12 C atoms, which is unsubstituted or substituted one or more times by  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl,  $C_{1-4}$  alkoxy, cyano, halogen, or combinations thereof,

cycloalkyl having 3 to 12 carbon atoms, which is unsubstituted or substituted one

or more\times by halogen, C<sub>1-4</sub> alkyl, halogenated C<sub>1-4</sub> alkyl, C<sub>1-4</sub> alkoxy, cyano or

aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1,4}$  alkyl, halogenated  $C_{1,4}$  alkyl, hydroxy,  $C_{1,4}$ -alkoxy, halogenated  $C_{1,4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1,4}$  alkylamino, di- $C_{1,4}$ -alkylamino,  $C_{1,4}$ -hydroxyalkyl,  $C_{1,4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2,4}$ -acyl,  $C_{2,4}$ -alkoxycarbonyl,  $C_{1,4}$ -alkylsulphinyl,  $C_{1,4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

arylalkyl having 7 to 16 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphinyl, phenoxy, or combinations thereof,

heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino,

darboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heteroarylalkyl wherein the heteroaryl portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heteroaryl portion is unsubstituted or is substituted one or more times in by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

heterocycle having 5 to 10 ting atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,

heterocycle-alkyl wherein the heterocycle portion has 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom and the alkyl portion has 1 to 3 carbon atoms, the heterocycle portion is nonarmoatic and is unsubstituted or is substituted one or more times in the by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, or combinations thereof,or

carbocycle which is nonaromatic, monocyclic or bicyclid, group having 5 to 14 carbon atoms, which is unsubstituted or is substituted one or more times in the by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$ 

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alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof;

and

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pharmaceutically acceptable salts thereof,

with the proviso that said compound is not 6-methylamino-9-(2-fluorobenzyl)-2-trifluoromethylpurine.

71. A method according to claim 70, wherein when  $R^{1c}$  is methyl, then  $R^{2c}$  is not arylalkyl, methyl or 2-butyl and when  $R^{1c}$  is H, then  $R^{2c}$  is not benzyl

70 72. A method according to claim 70, wherein:

- (a) when R<sup>1c</sup> is methyl, then R<sup>2c</sup> is not arylalkyl, heteroarylalkyl, 2-(1,2,3,4-tetrahydro)quinolinyl-methyl, methyl or 2-butyl;
- (b) when R<sup>1c</sup> is cyclopropyl, R<sup>2c</sup> is not 4-methylbenzyl;
- (c) when R<sup>1c</sup> is ethyl, then R<sup>2c</sup> is not ethyl, 3-aminobenzyl, 2-thienylmethyl, 3-thienylmethyl, or 2-pyridylmethyl;
  - (d) when R<sup>1c</sup> is cyclopropyl, then R<sup>2c</sup> is not cyclopropylmethyl;
  - (e) when R<sup>1c</sup> is H, then R<sup>2c</sup> is not methyl, ethyl, benzyl, 4-methylbenzyl, or substituted tetrahydrofuranyl;
- (f) when R<sup>1c</sup> is methoxyethyl, then R<sup>2c</sup> is not benzyl, 3-dimethylaminobenzyl, or 3-thienylmethyl;
- (g) when R<sup>1c</sup> is iso-butyl, then R<sup>2c</sup> is not benzyl; and
- (h) when R<sup>1c</sup> is n-butyl, then R<sup>2c</sup> is not n-butyl.
- 3071 3. A process for preparing compounds of the formula IV

wherein

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 $\mathbb{R}^2$ 

 $R^1$  is H,

alkyl having 1 to 5 carbon atoms, which is unsustituted or substituted one or more times by halogen, hydroxy, or combinations thereof, and wherein a -CH<sub>2</sub>- group can be optionally replaced by -O-, -S-, or -NH-,

cycloalkyl having 3 to 6 carbon atoms, or

cycloalkylalkyl having 4 to 7 C atoms; and

is aryl having 6 to 14 carbon atoms, which is unsubstituted or substituted one or more times by halogen,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, nitro, methylenedioxy, ethylenedioxy, amino,  $C_{1-4}$  alkylamino, di- $C_{1-4}$ -alkylamino,  $C_{1-4}$ -hydroxyalkyl,  $C_{1-4}$ -hydroxyalkoxy, carboxy, cyano, hydroxamic acid, carboxamide,  $C_{2-4}$ -acyl,  $C_{2-4}$ -alkoxycarbonyl,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, phenoxy, or combinations thereof,

heteroaryl having 5 to 10 ring atoms in which at least 1 ring atom is a heteroatom, which is unsubstituted or substituted one or more times by halogen, aryl,  $C_{1-4}$  alkyl, halogenated  $C_{1-4}$  alkyl, hydroxy,  $C_{1-4}$ -alkoxy, halogenated  $C_{1-4}$  alkoxy, cyano, trifluoromethyl, nitro, oxo, amino,  $C_{1-4}$ -alkylamino, di- $C_{1-4}$ -alkylamino, carboxy, alkoxycarbonyl, hydroxamic acid, carboxamide,  $C_{1-4}$ -alkylthio,  $C_{1-4}$ -alkylsulphinyl,  $C_{1-4}$ -alkylsulphonyl, or combinations thereof,

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said process comprising:

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reacting 6-N-R<sup>1</sup>-substituted adenine with an arylboronic acid or heteroarylboronic acid in the presence of trialkylamine wherein the alkyl have 1 to 5 C atoms, e.g., triethylamine, as a base, a copper catalyst, and a polar aprotic solvent, for example THF and CH<sub>3</sub>CN (particulary, CH<sub>3</sub>CN) at a temperature of at least 50°C, e.g., 50-60°C.

72  $^{3}$ . A compound according to claim 1, wherein  $R^{2}$  is cycloalkylalkyl.

1073 %. compound according to claim 74 wherein R<sup>1</sup> is alkyl, cycloalkyl or cycloalkylalkyl.

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